

REMARKS**OVERVIEW**

Claims 8-13 and 15-17 are pending in this application. Claims 8, 16 and 17 have been amended. The present response is an earnest effort to place all claims in proper form for allowance. Reconsideration and passage to issuance are respectfully requested.

ISSUES UNDER 35 U.S.C. § 112

Claims 8-13 and 15-16 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner indicated that the disclosure, as originally filed, failed to provide support for a step of "determining a standardized physical size for . . ." as a first step. The Applicant respectfully submits that determining a standardized size is supported in the Specification as originally filed, see e.g. page 3, lines 17-20 stating "The NTC thermistor of the present invention results in the ability to have standardized sizes of resistors in that the resistance value need not be dependent upon the physical size of the thermistor"; page 6, lines 23-25, stating "The particular mixture selected based on the desired properties of the thermistor such as the size of the thermistor"; page 8, lines 3-5, stating "This advantage of the present invention[s] permits NTC thermistors having different curves to be manufactured in the same size."; page 8, line 15, stating "This advantage allows package sizes to be standardized." Therefore, it is submitted that the Specification provides support for the step of "determining a standardized physical size for . . .". It is noted, however, that independent claims 8 and 16 have removed this limitation. Therefore, these rejections are moot and should be withdrawn.

ISSUES UNDER 35 U.S.C. § 103

Claims 8-10 and 16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U. S. Patent No. 3,574,930 to Riddel et al. in view of U. S. Patent No. 6,099,164 to Rosen et al. In making these rejections, the Examiner considered the printing process of Riddel to be a "thin film process because each layer is thin and deposited independently of each other" (office action, p.3, numbered paragraph 5). The Applicant disagrees with the Examiner's consideration of the printing process of Riddel to be a thin film process. However, claim 8 has been amended to explicitly require "sputter depositing the mixture of metal oxides on a substrate using a thin film process to form a resistive element." The addition of the term --sputter-- is not met by Riddel because Riddel teaches a printing process. Therefore, it is respectfully submitted that this rejection should be withdrawn with respect to claim 8. As claims 9 and 10 depend from claim 8, it is respectfully submitted that these rejections should also be withdrawn. It is also noted that the application as originally filed provides clear support for this amendment. See e.g. page 5 of the original specification, lines 21-72, stating "The thin film thermistor 22 has a resistive element 24 which is of the metal oxide mixture." Support for sputtering is found at least at page 4, last line of the original specification to page 5, first two lines which state that "This metal oxide mixture film is deposited using sputtering or other physical vapor deposition (PVD) processes."

Claim 16 has been amended in the same way to now include the limitation of "sputter depositing." Therefore, it is respectfully submitted that this rejection to claim 16 should also be withdrawn. In addition, it is noted that although not relevant to the current rejection, claims 8 and 16 have been amended to explicitly provide that the materials are --oxides-- and to remove the term "film" for clarity purposes.

Claims 11-14 and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U. S. Patent No. 3,574,930 to Riddel et al and U. S. Patent No. 6,099,164 to Rosen et al. in view of U. S. Patent No. 6,314,637 to Kimura et al and further in view of Bunshah et al. (Deposition Technologies for Films and Coatings), and U. S. Patent No. 4,498,071 to Plough, Jr., et al. It is noted that claim 8 from which claims 9 and 10 depend and claim 16 require "sputter depositing the metal oxides." This is not disclosed in either Riddel nor Rosen. The Examiner relies upon Bunshah for the proposition that "sputtering is used to deposit material on a substrate." (Office Action, page 4, numbered paragraph 6) and states that:

"It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Riddel/Rosen by sputtering to deposit conductor terminals; sputtering a passivation layer, and sputtering silicon nitride film and thermistor, as taught by Kimura, Plough and Bunshah, for the purpose of protecting the metal film material from the environment; providing a good surface for the resistive material to adhere; and deposit material on a substrate."

Rosen et al is directed towards thermistors that disclose a monocrystalline form of nickel-manganese-oxide cubic spinel (abstract). Cubic spinel crystals are a particular geometric configuration of crystals (col. 2, lines 47-49). Rosen et al does not disclose sputter depositing metal oxides to form a film. Rather, Rosen specifically is concerned with growing crystals.

Riddel is directed towards thermistor assemblies (abstract). When describing the thermistor material, the "particle size" of the thermistor composition is discussed (col. 2, lines 64-69) indicating that Riddel is using a very different methodology and not the thin film process of the present invention. Riddel discloses applying thermistor material using a "typical thermistor ink" and through silk screen printing (col. 2, lines 69-col. 3, line 2). Therefore, Riddel is directed towards a very different type of process to create a thermistor. The step of "sputter

depositing the mixture of metal oxides on a substrate" is not consistent with either Riddel or Rosen.

Bunshah et al discloses that sputter depositing is known. Yet Bunshah is not directed towards, and does not disclose or suggest sputter depositing metal oxides in forming a NTC thermistor. Further, none of these references provide any motivation or suggestion to do so. Therefore, looking at these references as a whole, there is no motivation or suggestion to combine and the Examiner appears to merely be applying improper hindsight.

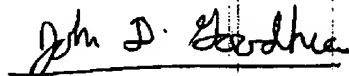
Claim 17 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Riddel in view of Bunshah et al. The Examiner recognizes Riddel fails to disclose sputtering (Office Action, page 5, numbered paragraph 7). The sputtering would be the sputtering of the mixture of metal film oxides. The Examiner states that Bunshah discloses sputtering used to deposit thin film materials on a substrate. The Examiner argues that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Riddel by sputtering to deposit the mixture of metal film materials on a substrate as taught by Bunshah for the purpose of depositing thin film metals on a substrate. The Examiner cites no motivation or suggestion to combine in the references themselves. Riddel teaches away from such a combination because Riddel teaches using a binder in the thermistor material (col.2, line 69-col.3, line 2). This would result in variations in the material composition, variations in resistance, and therefore greater tolerance would be required (specification, p.2, lines 11-14). Riddel does not recognize the problems caused by the conventional process. Riddel further teaches that the way to produce different thermistor resistances at a given temperature is by changing thermistor thickness size (see table at col.4, lines 17-34).

Therefore, it is respectfully submitted that this rejection should be withdrawn as well.

No fees or extensions of time are believed to be due in connection with this amendment;
however, consider this a request for any extension inadvertently omitted, and charge any
additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,





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